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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,131	09/30/2003	Shino Manabe	P24351	3834

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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

ISSAC, ROY P

ART UNIT	PAPER NUMBER
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1623

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	01/08/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/08/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary

Application No.

10/673,131

Applicant(s)

MANABE ET AL.

Examiner

Roy P. Issac

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>02/20/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

This application claims priority under 35 U.S.C §119 (a)-(d) and 365(c) to foreign application JAPAN 2002-312131 filed 28 October 2002.

Claims 1-8 are currently pending and are examined on the merits herein.

Claim Objections

A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n). In this case, claim 4 which depends from claim 1 is separated by independent claims 2 and 3.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1,3 and 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitations "a group capable of reacting with the hydroxyl group" render the claims indefinite. The

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recitations are not clearly defined in the specification. Note that definition by giving examples doesn't convey to one of skill in the arts the metes and bounds of the terms defined. Said phrase do not convey a structural formula or chemical name to one of ordinary skill in the art. In the absence of a structural formula or chemical name one of ordinary skill in the art would not be apprised of the metes and bounds of claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito Y. et. al. (Chem. Eur. J 2002, 8(14), 3076-3084; PTO-892, Cited by the examiner), in view of Attardi et. al. (Tet. Let. 41 (2000) 7395-7399; PTO-892, Cited by the examiner)

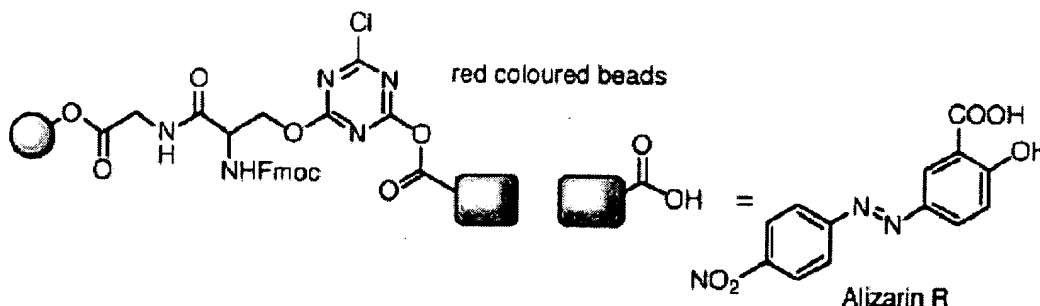
Ito et. al. discloses the use of p-nitrobenzylpyridine (PNBP) for the detection of the monochloroacetyl (CAc) group in solid phase synthesis of oligosaccharides (sugars). (Page 3078, Column 2, Paragraph 2 – Page 3079, Column 1, Paragraph 1; Scheme 2). Note that oligosaccharides are also described by the general term "sugars." Ito teaches that in case of

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oligosaccharide synthesis, estimation of coupling yields requires the quantification of hydroxy groups, which are difficult. (Page 3077, Column 2, Paragraph 3). Ito further teaches that the protecting groups presence (or absence) should be detectable with high specificity and precision. (Page 3078, Column 2, Paragraph 3).

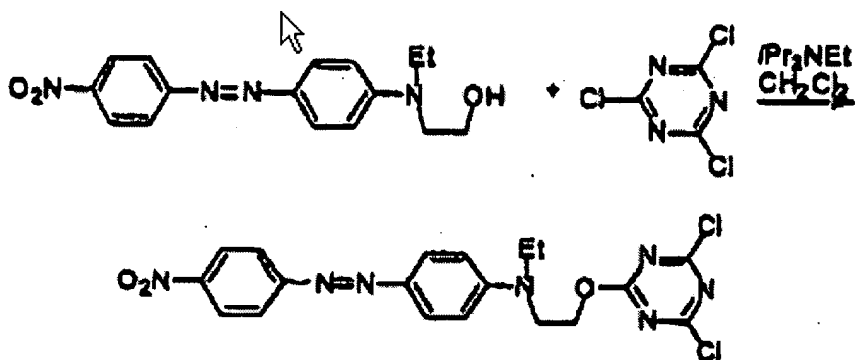
Ito et. al. does not expressly disclose the use of an azo dye compound of the formula X-Y for the detection of the presence of hydroxyl groups.

Taddei discloses the use of 2,4,6-trichloro[1,3,4]-triazine (TCT) and the aza dye, Alizarin R, to detect the presence of OH groups in solid phase synthesis. (Abstract). In Taddei et. al., TCT is first reacted with the hydroxyl group on the resin and the dye is further reacted with TCT attached to the resin, ultimately resulting in the same Dye-TCT adduct on the resin. (Page 7396, Scheme 1). Note that Alizarin R and Disperse Red of the instant application have very similar structures, as shown below:



Taddei: Alizarin R, and the TCT conjugate on the resin attached to an OH group immobilized on a resin. (Page 7396, Scheme 2).

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Instant Application: Disperse Red dye and TCT adduct of Disperse Red.

(Specification, Page 10, Example 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to synthesize the TCT adduct of Disperse Red dye and to use it to monitor the presence of OH groups on a solid phase during oligosaccharide synthesis, as well as to monitor the presence of chloroacetyl group using p-nitrobenzylpyridine (PNBP), because Ito et. al. discloses the use of PNBP to monitor the presence of OH groups during solid-phase synthesis of oligosaccharides, and Taddei et. al. discloses the use of an azo dye with strong structural similarity to Disperse Red and its addition to TCT to monitor the presence of OH groups in solid phase synthesis.

One of ordinary skill in the art would have been motivated to use both PNBP and an Azo dye conjugate of TCT to monitor solid-phase oligosaccharide synthesis, because Ito teaches that the protecting groups presence (or absence) should be detectable with high specificity and precision during oligosaccharide synthesis, in particular OAc a widely used protective group in oligosaccharide

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synthesis. If the claimed invention and the structurally similar prior art species share any useful property, that will generally be sufficient to motivate an artisan of ordinary skill to make the claimed species. It is a reasonable expectation that similar species usually have similar properties. See Dillon, 919 F.2d at 693, 696, 16 USPQ2d at 1901, 1904. See also, Deuel, 51 F.3d at 1558, 34 USPQ2d at 1214. In fact, similar properties may formally be presumed when compounds are very close in structure. Dillon 919 F.2d at 693, 696, 16 USPQ2d at 1901, 1904, as noted in MPEP 2144.

Therefore, one of ordinary skill in the art would have reasonably expected that both PNBp and the TCT conjugate of Disperse Red can be successfully employed to monitor the presence and absence of OH group and its protective group OAc.

Thus the claimed invention as a whole is clearly prima facie obvious over the combined teachings of the prior art.

No Claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roy P. Issac whose telephone number is 571-272-2674. The examiner can normally be reached on 9:00-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on 571-272-0627.

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The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Roy P. Issac
Patent Examiner
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